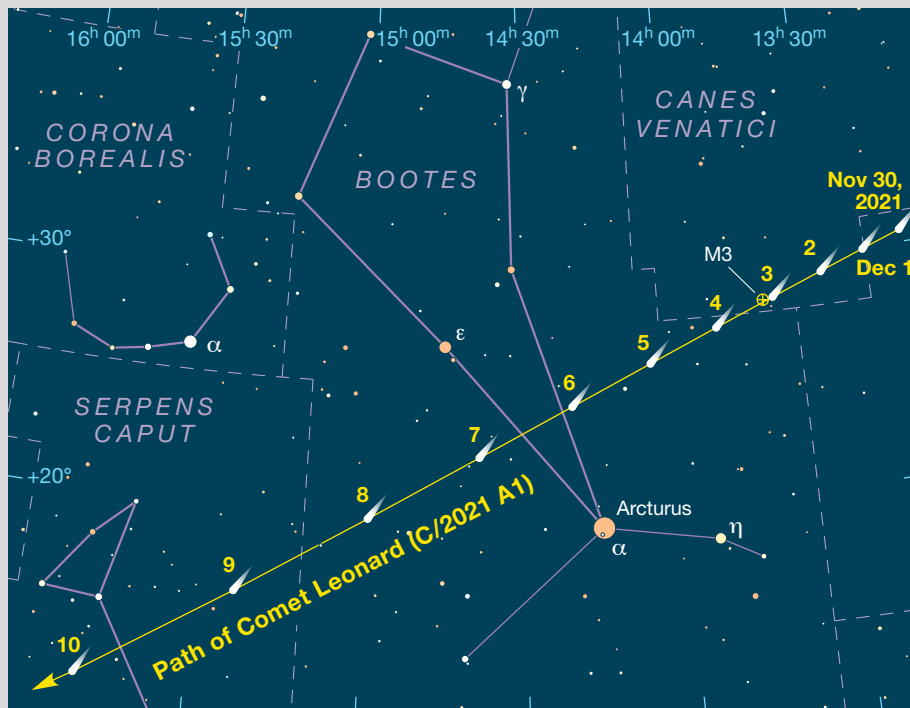


Comet Leonard Races Across the Sky

This fast-moving visitor may prove to be the best object of its kind in more than a year.

Many of us have been living off the fumes from Comet NEOWISE (C/2020 F3) in anticipation of the next bright comet. That opportunity will hopefully present itself in December when Comet Leonard (C/2021 A1) could brighten to naked-eye prominence. Astronomer Gregory J. Leonard



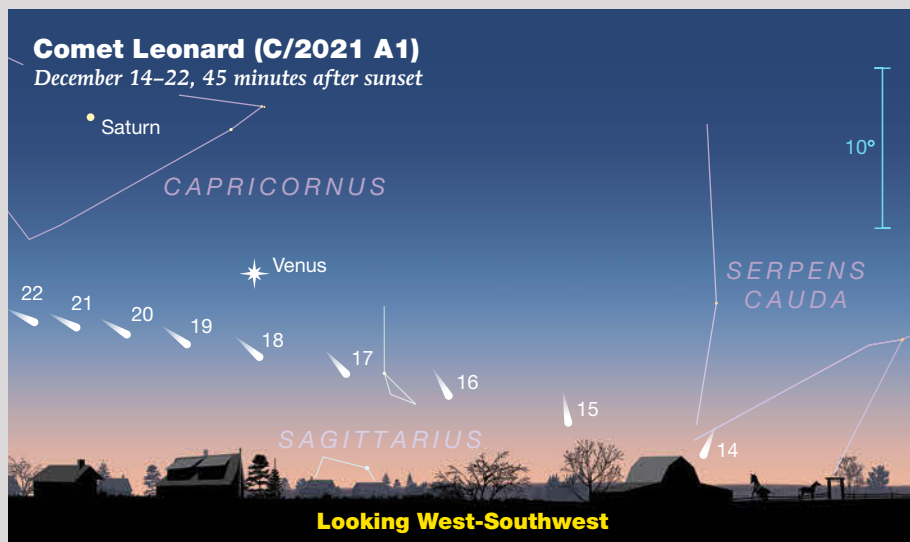
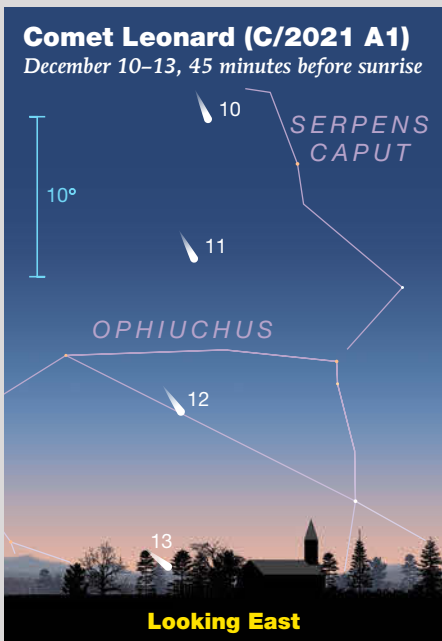
at the Mount Lemmon Observatory near Tucson, Arizona, discovered the comet exactly one year before perihelion on January 3, 2021, when it was at 19th magnitude.

With any luck the comet might reach magnitude 6.5 in Canes Venatici at the start of morning twilight as the month opens. Leonard then races through Boötes and Serpens where it could become a fine binocular object as it

▲ As December begins, Comet Leonard is in Canes Venatici. It will be near the bright globular cluster M3 on the mornings of December 2nd and 3rd, as seen from North America. (The comet's positions are plotted for 0^h UT.)

peaks around 4th magnitude during its closest approach to Earth on December 12th. Unfortunately, that's also around the time the comet will lose its battle with bright morning twilight.

Of course, predicting a comet's



brightness is a notoriously tricky business beset with uncertainty. As comet expert Alan Hale notes, “The good news is that it comes close to Earth and will be appearing at a high phase angle, and if it has a reasonably high dust content there could be quite a bit of enhancement due to forward scattering.” Forward scattering (or backlighting) makes dust glow brightly when seen in the same direction as the Sun. However, since most comets don’t release the bulk of their dust until after perihelion (which occurs several weeks following Leonard’s closest approach to Earth), Hale advises us to temper our expectations.

After December 12th, the comet departs the dawn and pops up low in the southwestern sky after sundown. And it’s moving at lightning speed! Between December 12th and 13th, it covers nearly 10° of sky, as it traces a shallow arc across the southwest from Ophiuchus into Sagittarius. Observers at mid-northern latitudes will struggle to coax Leonard from twilight’s glow until later in the month. Near the end of twilight on the 22nd, the comet will shine at 5th magnitude and stand about 5° above the southwestern horizon. It loses another magnitude by month’s end as it ducks into Piscis Austrinus.

Highlights of Comet Leonard’s apparition include a flyby of the 6.3-magnitude globular cluster M3 on the mornings of December 2nd and 3rd, and at dusk on the 17th the comet sits 5° below Venus. Moonless skies prevail in the morning hours from the 2nd through to the 13th, and in the early evening starting around the 21st.

Comet Leonard may seem in a hurry right now, but it took its sweet time getting here. Aphelion occurred about 35,000 years ago at a distance of 3,500 a.u. Its current visit to the inner solar system has essentially spanned most of modern human history. When the comet next returns, the world will surely have changed beyond recognition.***

[Find out more about Comet Leonard at this link.](#)